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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/688,181      | 10/16/2000  | HIDEYUKI KURITA      | 107594              | 8580             |

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EXAMINER

LEE, GRANVILL D

ART UNIT PAPER NUMBER

2825

DATE MAILED: 03/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/688,181

Applicant(s)

KURITA ET AL.

Examiner

Granvill D Lee, Jr

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 12-15 is/are rejected.
- 7) ☒ Claim(s) 10-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections - 35 USC § 112***

Claims 5 and 12 objected to under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims make mention of a metal coating selected from several materials whereas a coating from one material or a mixture thereof would be more accurate? Correction or explanation is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerber et al. (WO 94/29897) in view of Hayden et al. (US Pat. 6,019,271).

In view of claim 1, Gerber et al. discloses a manufacturing process where a multi-layered flexible wiring board (Fig. 9) consisting of a film layer (Fig. 1 #10), adhesive layer (Fig. 10 #24 & 58), and a metal layer (Fig. 8 #16), which can be laminated with many other boards (Fig. 10). However, Gerber does not

Art Unit: 2825

show that an ultrasonic process can be used to ultrasonically bond one or more boards together. But, Hayden et al. depicts a process that uses ultrasonic waves to bond two boards together (Fig. 11c) through their respective conductive bonding areas (Fig. 4 & 5).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Gerber et al. with Hayden et al with the expectation of achieving better soldering results, since it is known in the art that this process can achieve speed and efficiency in repetitious manufacturing processes with less heat.

In view of claim 3, Gerber et al. discloses trace wirings (Fig. 9 # 34,36...) in close proximity to each other, then uses a adhesive layer (#58,60...), so that upon thermal bonding the adhesive forms contact to wirings and the area between (Pg. 9 lines 13-20).

In view of claim 4, upon heating Gerber et al. can laminate several boards together as shown (Fig. 9).

In view of claims 5 and 14-15, Gerber et al. discloses several metals that can be used in the invention, like gold, tin and lead among others (Pg. 9 lines 5-10).

In view of claims 7 and 13, Gerber et al. points out a manufacturing process where a multi-layered flexible wiring board (Fig. 9) consisting of a film layer (Fig. 1 #10), adhesive layer (Fig. 10 #24 & 58), and a metal layer (Fig. 8 #16), which can be laminated with many other boards (Fig. 10). Further

Art Unit: 2825

al. points to a cover layer (Fig. #22) to the metal wirings and to the metal contact. Upon bonding, the bottom of one board is in close proximity to each other, with a metal layer in-between.

In view of claim 8, the Gerber et al. insulating adhesive layers described ((Fig. 9 #58, 60...) keep close contacts like #16 and #36 (Fig. 10) insulated while those at the metal opening (#20) and #36 can conduct (Pg. 10 lines 1-10).

In view of claim 9, Hayden et al. describes parts that are thermoplastic in nature (Col. 3 lines 63-66).

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerber et al. (WO 94/29897) in view of Hayden et al. (US Pat. 6,019,271) and further view of DiStefano et al. (US Pat. 6,232,152).

In view of these claims, Gerber et al. discloses a manufacturing process where a multi-layered flexible wiring board consisting of a film layer, an adhesive layer, and a metal layer, which can be laminated with many other boards. Hayden et al. depicts a process that uses ultrasonic waves to bond two boards together. However, neither inventor shows the ultrasonic mechanism involved in the process. DiStefano et al. depicts an ultrasonic bonding tool (Fig. 6b #60) for bonding processes. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Gerber et al. and Hayden et al with those of DiStefano et al. with

Art Unit: 2825

the expectation of achieving better individual soldering results, since now ultrasonic soldering can be made to any joint in the soldering process.

***Allowable Subject Matter***

Claims 10-11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Contact Information***


Any inquiry concerning this communication or earlier communications for the examiner should be directed to Granvill Lee whose telephone number is (703) 306-5865. The examiner can be normally reached on Monday thru Thursday from 7:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are not successful, the examiner's supervisor, Matthew Smith can be reached on (703) 308-1323. The fax phone number for this group is (703) 308-7722.

Any inquiry of a general nature relating to status or otherwise should be directed to the receptionist whose telephone number is 703-308-1782.

Examiner  
Granvill Lee  
Art Unit 2825

GI  
3/8/02

  
MATTHEW SMITH  
SUPERVISOR  
TECHNOLOGY CENTER